## CLAIMS

1. An electro-optic modulator comprising:

   a substrate;

   a planar micro-cavity supported by the substrate;

   a first Bragg reflector on a first side of the micro-cavity;

   a second Bragg reflector on a second side of the micro-cavity; and

   a modulator that modulates a refractive index of the cavity.

2. The electro-optic modulator of claim 1 wherein the modulator comprises a p-i-n diode formed on top of the micro-cavity.

3. The electro-optic modulator of claim 1 wherein the Bragg reflectors are distributed Bragg reflectors.

4. The electro-optic modulator of claim 3 wherein the distributed Bragg reflectors comprise alternating areas having high and low refractive indices.

5. The electro-optic modulator of claim 3 and further comprising a rib extending through the cavity and Bragg reflectors.

6. The electro-optic modulator of claim 1 and further comprising a lateral trench in the micro-cavity on both sides of the modulator.

7. The electro-optic modulator of claim 1 and further comprising an insulative layer formed on the substrate between the substrate and the micro-cavity and Bragg reflectors.

8. The electro-optic modulator of claim 7 and further comprising a planar silicon dioxide layer covering the micro-cavity, Bragg reflectors and modulator.

9. An electro-optic modulator comprising:

   a silicon substrate;

an insulator formed on the silicon substrate;

a planar micro-cavity formed on the insulator;

a first Bragg reflector formed on a first side of the micro-cavity;

a second Bragg reflector formed on a second side of the micro-cavity;

a rib extending through the cavity and Bragg reflectors;

a p-i-n diode formed on the micro-cavity that modulates a refractive index of the cavity; and

a lateral trench in the micro-cavity on both sides of the modulator.

10. An electro-optic modulator comprising:

a rib waveguide;

a cavity region, wherein the rib waveguide divides the cavity region into two sections;

a pair of reflectors disposed about the cavity region along the rib waveguide; and

means for modulating light passing through the rib waveguide.

11. The electro-optic modulator of claim 10 wherein the means for modulating light comprises a p-i-n diode coupled to the two sections of the cavity region.

12. The electro-optic modulator of claim 11 wherein the p-i-n diode comprises a p+ doped area over one section of the cavity region, and a n+ doped area over the other section of the cavity region.

13. The electro-optic modulator of claim 12 wherein the doped areas are separated from a rib of the rib waveguide.

14. The electro-optic modulator of claim 12 and further comprising lateral trenches extending between the reflectors and bounding the cavity region.

15. The electro-optic modulator of claim 10 wherein the reflectors comprise alternating high a low refractive index sections disposed transverse to the rib waveguide.

16. The electro-optic modulator of claim 12 wherein the high refractive index sections are formed of Si, and the low refractive index sections are formed of $SiO_2$.

17. The electro-optic modulator of claim 10 and further comprising a silicon substrate supporting a buried oxide layer on which the rib waveguide, reflectors and cavity region are formed.

18. The electro-optic modulator of claim 12 wherein the cavity comprises a Fabry-Perot microcavity.

19. An electro-optic modulator comprising:
means for confining an optical field in a cavity;
means for confining carriers in the cavity; and
means for modulating a refractive index of the cavity.

20. A method of modulating light, the method comprising:
providing light to a first end of a rib waveguide;
providing a first reflector along the waveguide;
passing the light into a modulation cavity from the first reflector;
providing a second reflector opposite the first reflector relative to the cavity region; and
modulating the light in the modulation cavity.

21. The method of claim 20 wherein the light is modulated by applying a signal to a p-i-n diode formed on the cavity about the rib waveguide.